

adjacent elements in the interleaved sequence originally were separated by a first number of elements in the source sequence and originally adjacent elements in the source sequence are separated by at least a second number of elements in the interleaved sequence; and transmitting the interleaved sequence of the elements of the data.

4. (Amended) The method as set forth in claim 1 wherein the interleaving further comprises  $O(i) = S(h)$  where  $h = (i * K) \bmod N$ , if  $h$  is not already a member of  $H$  and  $O(i) = S(h)$  where  $h = (i * K) \bmod N + 1$  if  $h$  is already a member of  $H$ , where  $h$  denotes a location of one of the elements in the source sequence,  $H$  denotes a set of one or more computed  $h$  values,  $N$  is a number of the elements in the source sequence to be interleaved and is a whole number greater than 4,  $i$  denotes a location of one of the elements in the interleaved sequence,  $S$  denotes the source sequence,  $O$  the interleaved sequence and  $K$  is a whole number greater than 1 and denotes the number of elements to be skipped.

5. (Amended) The method as set forth in claim 1 wherein the interleaving further comprises initializing an index number  $BB$  to be 0 and then for the sequence  $i=1$  to  $i=N-1$ ,  $O(i) = S(h)$  where  $h = (i * K + BB) \bmod N$  and if  $h = BB$ , then add 1 to  $BB$  and add 1 to  $h$ , where the index number  $BB$  is a whole number,  $i$  denotes a location of one of the elements in the interleaved sequence,  $h$  denotes a location of one of the elements in the source sequence,  $N$  is a number of the elements in the source sequence to be interleaved,  $S$  denotes the source sequence,  $O$  denotes the interleaved sequence, and  $K$  is a whole number greater than 1 and denotes the number of elements to be skipped.

6. (Amended) The method as set forth in claim 2 wherein the de-interleaving further comprises initializing an index number  $BB$  to be 0 and then for the sequence  $i=1$  to  $i=N-1$ ,  $D(h) = O(i)$  where  $h = (i * K + BB) \bmod N$  and if  $h = BB$ , then add 1 to  $BB$  and add 1 to  $h$ , where the index number  $BB$  is a whole number,  $i$  denotes a location of one of the elements in the interleaved sequence,  $h$  denotes a location of one of the elements in the source sequence,  $N$  is a number of the elements in the source sequence to be interleaved,  $O$  denotes the interleaved sequence,  $K$  is a whole number greater than 1 and denotes the number of elements to be skipped, and  $D$  denotes a de-interleaved sequence.

7. (Amended) A computer readable medium having stored thereon instructions for communications using interleaving which when executed by a processor, causes the processor to perform the steps of:

determining a first position of elements of data in an interleaved sequence using a second position of the elements in a source sequence and a number of elements to be skipped;

interleaving the elements of data in the source sequence according to the determined first position of the elements to form the interleaved sequence, wherein adjacent elements in the interleaved sequence originally were separated by a first number of elements in the source sequence and originally adjacent elements in the source sequence are separated by at least a second number of elements in the interleaved sequence; and

transmitting the interleaved sequence of the elements of the data.

10. (Amended) The computer readable medium as set forth in claim 7 wherein the interleaving further comprises  $O(i) = S(h)$  where  $h = (i * K) \bmod N$ , if  $h$  is not already a member of  $H$  and  $O(i) = S(h)$  where  $h = (i * K) \bmod N + 1$  if  $h$  is already a member of  $H$ , where  $h$  denotes a location of one of the elements in the source sequence,  $H$  denotes a set of one or more computed  $h$  values,  $N$  is a number of the elements in the source sequence to be interleaved and is a whole number greater than 4,  $i$  denotes a location of one of the elements in the interleaved sequence,  $S$  denotes the source sequence,  $O$  the interleaved sequence, and  $K$  is a whole number greater than 1 and denotes the number of elements to be skipped.

11. (Amended) The computer readable medium as set forth in claim 7 wherein the interleaving further comprises initializing an index number  $BB$  to be 0 and then for the sequence  $i=1$  to  $1=N-1$ ,  $O(i) = S(h)$  where  $h = (i * K + BB) \bmod N$  and if  $h = BB$ , then add 1 to  $BB$  and add 1 to  $h$ , where the index number  $BB$  is a whole number,  $i$  denotes a location of one of the elements in the interleaved sequence,  $h$  denotes a location of one of the elements in the source sequence,  $N$  is a number of the elements in the source sequence to be interleaved,  $S$  denotes the source sequence,  $O$  the interleaved sequence, and  $K$  is a whole number greater than 1 and denotes the number of elements to be skipped.

12. (Amended) The computer readable medium as set forth in claim 8 wherein the de-interleaving further comprises initializing an index number BB to be 0 and then for the sequence  $i=1$  to  $i=N-1$ ,  $D(h) = O(i)$  where  $h = (i*K + BB) \bmod N$  and if  $h = BB$ , then add 1 to BB and add 1 to h, where the index number BB is a whole number, i denotes a location of one of the elements in the interleaved sequence, h denotes a location of one of the elements in the source sequence, N is a number of the elements in the source sequence to be interleaved, O denotes the interleaved sequence, K is a whole number greater than 1 and denotes the number of elements to be skipped, and D denotes a de-interleaved sequence.

13. (Amended) A system for communications using interleaving, the system comprising:

a first interleaving processing system that determines a first position of elements of data in an interleaved sequence using a second position of the elements in a source sequence and a number of elements to be skipped and interleaves the elements of data in the source sequence according to the determined first position of the elements to form the interleaved sequence, wherein adjacent elements in the interleaved sequence originally were separated by a first number of elements in the source sequence and originally adjacent elements in the source sequence are separated by at least a second number of elements in the interleaved sequence; and

a first communication system that transmits the interleaved sequence of the elements of the data.

16. (Amended) The system as set forth in claim 13 wherein the first interleaving processing system interleaves elements of data in a source sequence so that  $O(i) = S(h)$  where  $h = (i*K) \bmod N$ , if h is not already a member of H and  $O(i) = S(h)$  where  $h = (i*K) \bmod N + 1$  if h is already a member of H, where h denotes a location of one of the elements in the source sequence, H denotes a set of one or more computed h values, N is a number of the elements in the source sequence to be interleaved and is a whole number greater than 4, i denotes a location of one of the elements in the interleaved sequence, S denotes the source sequence, O the interleaved sequence, and K is a whole number greater than 1 and denotes the number of elements to be skipped.

17. (Amended) The system as set forth in claim 13 wherein the first interleaving processing system interleaves elements of data in a source sequence by initializing an index number BB to be 0 and then for the sequence  $i=1$  to  $i=N-1$ ,  $O(i) = S(h)$  where  $h = (i*K + BB) \bmod N$  and if  $h = BB$ , then add 1 to BB and add 1 to h, where the index number BB is a whole number, i denotes a location of one of the elements in the interleaved sequence, h denotes a location of one of the elements in the source sequence, N is a number of the elements in the source sequence to be interleaved, S denotes the source sequence, O the interleaved sequence, and K is a whole number greater than 1 and denotes the number of elements to be skipped.

18. (Amended) The system as set forth in claim 14 wherein the second interleaving processing system de-interleaves elements of data in a source sequence by initializing an index number BB to be 0 and then for the sequence  $i=1$  to  $i=N-1$ ,  $D(h) = O(i)$  where  $h = (i*K + BB) \bmod N$  and if  $h = BB$ , then add 1 to BB and add 1 to h, where the index number BB is a whole number, i denotes a location of one of the elements in the interleaved sequence, h denotes a location of one of the elements in the source sequence, N is a number of the elements in the source sequence to be interleaved, O denotes the interleaved sequence, K is a whole number greater than 1 and denotes the number of elements to be skipped, and D denotes a de-interleaved sequence.